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ABSTRACT

This performance audit was conducted by the Legislative Budget Committee for the purpose of providing the Washington State Legislature with an evaluation of the enrollment projection methods utilized in the development of the Washington State Community College system operating budget request to the Legislature. The Committee studied the planning, operational, and methodological review functions of the Office of Program Planning and Fiscal Management (part of the State Census Board), which has been directly responsible for the preparation of enrollment projections for the community college system since 1970. As a result of this evaluation, it was concluded that the present methods are inadequate in that they do not account for community needs, student characteristics, local economic characteristics, sociological groupings, or other factors which influence enrollments. Present enrollment projection methods are based on census data for the age group of 18 to 24 years; since this age group is not representative of the community college student body, the statistic is irrelevant. As a result, actual enrollments have surpassed projected enrollments by 0.5 percent to 10.3 percent for the past four years. Current enrollment projection methods are reviewed in detail. No recommendations for improvements are made. (Author/DC)

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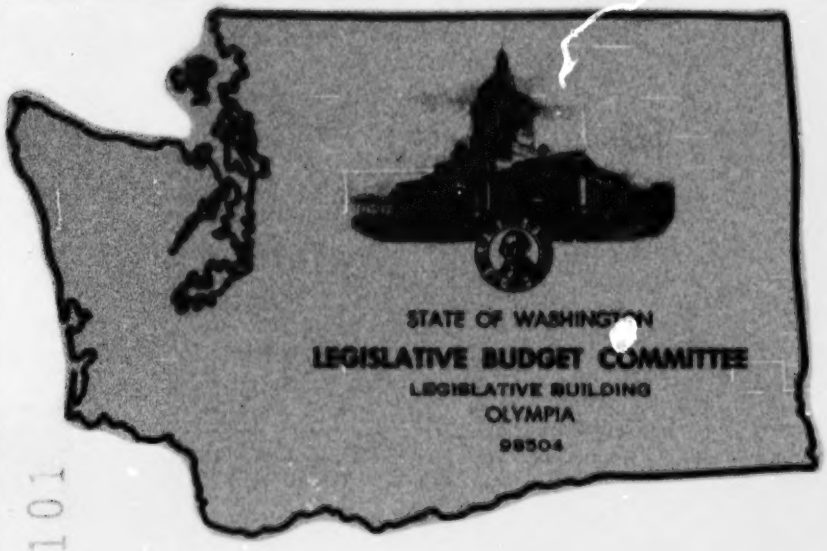

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PERFORMANCE AUDIT

REPORT No. 74-6

COMMUNITY COLLEGE ENROLLMENT PROJECTION METHODOLOGY

JUNE 22, 1974

A Report to the
WASHINGTON STATE LEGISLATURE

JC 750 407

FOREWORD

This performance audit of the Community College Enrollment Projection Methodology has been conducted under the provisions of RCW 44.28.085 and 44.28.086 quoted in part as follows:

> *The legislative budget committee may make management surveys and program reviews as to every public body, officer or employee subject to the provisions of RCW 43.09.290 through 43.09.340. Management surveys for the purposes of this section shall be an independent examination for the purpose of providing the legislature with an evaluation and report of the manner in which any officer, administrator, or employee of a state agency subject to RCW 43.09.290 through 43.09.340 has discharged his responsibilities to faithfully, efficiently and effectively administer any legislative purpose of the state. Program reviews for the purpose of this section shall be an examination of agency programs to ascertain whether or not such programs continue to serve their intended purposes, are conducted in an efficient and effective manner or require modification or elimination. . .*
>
> *The legislative budget committee authority for management surveys contained in RCW 44.28.085 shall include reviews of program goals and objectives of public bodies, officers or employees to determine conformity with legislative intent and shall include comprehensive performance audits to ensure that agency programs are being conducted in accordance with legislative intent and program goals and objectives.*

A "management" or a "performance" audit is essentially a systematic and objective appraisal of the quality of management, directed toward determining whether an agency(s) had discharged and is discharging its responsibilities to faithfully, efficiently and effectively administer its designated state programs. The assessment of the quality of management involves the detailed examination and analysis of the three basic management functions--planning, operations, and review. Faithfulness refers to whether the programs have been

administered in accordance with promises made to the Legislature and the expression of legislative will (legislative intent). Effectiveness refers to whether planned program objectives are being achieved; efficiency refers to whether program accomplishments are being achieved through utilizing the least costly combination of resources and with a minimum of waste.

This performance audit was conducted for the purpose of providing the Legislature an evaluation of the enrollment projection utilized in the development of the Washington State Community College system operating budget request to the Legislature. The management functions that are involved with the enrollment projection are the planning function, the operations function and the management review function. It was not the intent of this audit to determine the adequacy of the budget request that results from utilization of the enrollment projection. Specific concerns of the examination of the planning function were the delineation and analysis of the agency's enrollment projection objectives, the methods for achieving them on a timely, orderly basis and the establishment of a control system to assure accomplishment in a faithful, efficient and effective manner. Examination of the operations function provided a delineation and analysis of the degree of success that management has had in implementing and controlling the process that leads to development of an enrollment projection. Examination of the review function consisted of a delineation and analysis of the processes whereby management compared projected enrollment with actual enrollment.

The following report of the audit is composed of a statement of the Scope and Objectives of the audit; a Summary which states in condensed form the conclusions of the audit findings and analysis. No recommendations are included as a part of this audit report. The significant findings and conclusions reached here will provide a basis for recommendations to be included in a future audit of broader scope.

Information utilized in this audit was gathered from the Office of Program Planning and Fiscal Management and the State Board for Community College Education.

The cooperation and assistance provided by staff members of the Office of Program Planning and Fiscal Management, Population Studies Division, and the State Board for Community College Education was appreciated.

The audit was conducted by Duane Peak of the Legislative Budget Committee staff.

THOMAS R. HAZZARD
Legislative Auditor

Approved June 22, 1974, by the
Legislative Budget Committee

Representative A. N. Shinpoch, Chairman

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SECTION I

SCOPE AND OBJECTIVES

SCOPE

The audit of enrollment projection methodology was limited to the enrollment projection utilized in the development of the request for community college operating fund appropriation. The controlling projection was prepared by the Office of Program Planning and Fiscal Management. Therefore, the audit was limited to an evaluation of the OPP & FM methodology.

OBJECTIVES

The objectives of this audit were:

1. To determine whether or not the methodology for developing enrollment projections was relevant, valid and responsive to the various elements that influence community college enrollments.
2. To recommend changes in the enrollment projection methodology where it was found to be deficient.
3. To recommend legislation for passage where statutory changes are required to achieve a valid enrollment projection.

SECTION II

SUMMARY

The State Board for Community College Education uses a cost model approach in developing a composite budget for the community college system and to allocate funds to the individual districts. A principal variable in the cost models is an enrollment projection.

The 1973-75 enrollment projection that was presented in the Governor's budget was formulated through judgmental techniques. A growth of 2,000 annual average full-time equivalent (AAFTE) students was provided for in each fiscal year. The latest estimate of the actual 1973-74 three quarter AAFTE enrollment is 72,596 as compared to 65,800 as provided in the Governor's budget request--a deviation of 10.3%. The audit concludes that the methodology used to develop the 1973-75 community college enrollment projection that is presented in the 1973-75 Governor's budget was not relevant, valid and responsive to the various elements that influence community college enrollments.

The method used to predict the 1974-75 enrollment that was presented in the 1973-75 Governor's Supplemental Budget Request appears to be statistically valid although it does not consider the varying characteristics of the community college student.

SECTION III

FINDINGS-ANALYSIS-RECOMMENDATIONS

BACKGROUND

Washington's community college system is an integral part of the state's higher education system, offering courses in a wide range of academic and vocational fields and enrolling 50% of all full-time equivalent students in public higher education. Comprised of 22 college districts with 27 campuses and over 500 off-campus educational sites, the system is managed by a seven-member Board appointed by the Governor. Each district has a five-member Board, also appointed by the Governor, which is responsible for the operations of the individual district.

The community college system accounted for 5.5% of the total state's 1973-75 biennium general fund budget. The community college system has experienced a growth in both enrollment and dollar amount of expenditures as displayed below:

	Enrollment, Four Quarter Average FTE Students	Total Actual Expenditures, All Funds
1969-70	51,992	$57,878,000
1970-71	62,911	66,250,000
1971-72	68,177	71,835,000
1972-73	72,073	83,809,000
1973-74	78,400 (est)	93,248,000 (est)

The community college enrollment projection is a principal variable in the development of the operating budget requests presented to the Governor for evaluation and referral to the Legislature. The cost models or formulas, using an enrollment projection as a variable, generated approximately 81% of the general fund monies requested in the 1973-75 biennium for community college operating funds.

A. PLANNING FUNCTION

INTRODUCTION

The planning function for an enrollment projection system should include: a stated purpose (objective) for developing the projection; a formula (plan) for developing the projection; establishment of acceptable deviation tolerances between the projection and actual enrollment experience (performance standards); and, a means of collecting data (reporting system) so that the projection can be compared to the actual enrollment.

FINDINGS

The Community College Act of 1967 placed responsibility for preparation of enrollment projections to support plans for community college facilities on the State Census Board (OPP&FM). Chapter 43.62.050 RCW specifically requires OPP&FM to prepare an enrollment projection for submittal to the Governor and the Legislative Budget Committee each biennium. Under these provisions, OPP&FM has been directly responsible for preparation of the enrollment projection for the community college system since 1970. Prior to 1970, the projections were developed within the community college

system and reviewed by OPP&FM. The objective of the enrollment projection methods employed by OPP&FM is *to make a reasonable projection of the number of students who can be expected to attend community colleges*, and the projection has become the "control" total for the development of the community college operating budget.

In their own words, the following techniques were employed by the staff of the Office of Program Planning and Fiscal Management in projecting enrollments:

1973-75 Biennium Budget Request

1. *Using the age group of 18-24 years (which is used by the U. S. Office of Education and the Bureau of the Census), a historical relationship of the ratio of population age 18-24 years and 8th-day headcount from 1967 to 1972 was calculated. This relationship was then extended to project 8th-day headcount for fall of 1973 and 1974.*

2. *A similar relationship procedure is used to convert 8th-day headcount to 8th-day FTEs.*

3. *From Step 2, we calculated the ratio of 8th-day FTEs to final fall FTEs, again based upon the historical relationship that was developed from 1967 to 1971.*

   Since the 1972 final fall enrollment was not available in November, 1972, the following procedure was used to estimate the 1972 final fall enrollment. The 1967-71 ratio of change between 8th-day enrollment to final fall enrollment was projected for final fall 1972 and extrapolated on the final fall enrollment figures for 1973 and 1974.

4. *The final fall FTEs were then related to three-quarter average annual FTEs for the period 1967-1971 to establish a ratio which was then extended to project ratios for 1973-1974 and 1974-1975 average annual FTE enrollment for budget purposes.*

5. *These projections were then reviewed concurrently by the Director of OPP&FM, his Education Program Coordinator, the Director of the Council on Higher Education and his Assistant Director for Enrollment Studies, and the staff of the Population Studies Division. Several Policy concerns were discussed at this preliminary review session:*

a. *How do you explain the decline in community service enrollment? Has this enrollment actually declined or have these enrollments been classified into other categories which are now receiving full state support and consequently account for part of the 8th-day to final fall enrollment growth?*

b. *The State Board for Community College Education policy to increase the proportion of occupational FTEs over academic FTEs in the projection period has what impact on average annual FTE enrollments? The fact that the occupational student takes fewer student credit hours and that fewer occupational courses start up after 8th-day headcount, coupled with the decline in community service enrollment, raised serious questions regarding a reasonable projection for the 1973-75 budget.*

6. *Because of these concerns, the following recommendations were adopted by OPP&FM and agreed to by the Council on Higher Education:*

a. *It was agreed that a jointly sponsored study of historical changes in the accounting, reporting, and classification of enrollments was needed and would be undertaken by SBCCE, CHE, and OPP&FM in early 1973. It was also agreed that a joint report of findings and recommendations would be prepared so that a plan of action might be developed for improving enrollment projections.*

b. *Until this detailed Enrollment Survey was completed, it was decided to limit the average annual increase in FTEs to approximately 2000 for each year of the 1973-75 biennium budget. This increase of 2000 FTEs per year, although lower than that projected from historical trends (1967-72), seemed reasonable, given:*

(1) *an increase of only 784 FTEs for final fall enrollment between 1971 and 1972;*

(2) *problems in getting specific answers for the decline in community service enrollments;*

(3) *that 2000 FTEs growth per year would provide for the continued expansion in vocational technical enrollments over academic enrollments;*

(4) *the understanding that after the Enrollment Survey was completed in the spring of 1973, a revised projection for 1974-1975 would be undertaken for the Supplemental Budget in November, 1973.*

(Source: memorandum May 13, 1974 from John Walker, OPP&FM to Duane Peak, LBC)

1973-75 Supplemental Budget Request

The development of the 1974-75 community college system enrollment projections was based on two primary elements: (1) an estimate of actual 1973-74 enrollment levels, and (2) a projection of expected academic and vocational FTE growth in 1974-75.

The estimate of 1973-74 enrollments began with the collection and aggregation in October of the district estimates of their final fall, 1973 enrollments. (This preliminary fall estimate was requested by OPP&FM and CHE for the first time in 1973). Three-quarter annualized estimates were then developed by multiplying the final fall estimates of academic and vocational by the respective historical relationships of fall to annual average. The resulting estimate was 5,402 FTEs higher than the previously budgeted levels for 1973-74.

The projection of growth of 3/4 annual average FTEs in 1974-75 was based upon the following assumptions:

1. An analysis of the historical growth rates of the vocational program indicated that the percentage of vocational growth was slowing in the community college system. The trend was projected to continue in 1974-75.

2. No independent academic growth was assumed. However, the FTE impact of academic credit hours taken by vocational students was considered. This induced academic growth historically runs at 22 percent of vocational growth. That is, 22 academic FTEs are induced by every 100 vocational FTEs of growth. We noted that the academic projections included an estimated 1,700 contracted FTEs generated by Fort Steilacoom Community College in their Fort Lewis program. Since these FTEs were not supported by state funds, they were deleted from the budgeted projection used in the supplemental budget.

3. The summer 1974 projections included in the original appropriation were considered appropriate and were unchanged in the supplemental budget

(Source: memorandum May 2, 1974, from Earl Hale, State Board for Community College Education, to Duane Peak, Legislative Budget Committee)

EVALUATION AND CONCLUSIONS

One of the primary audit objectives was to determine whether or not the methodology used to develop the enrollment projection is relevant, valid and responsive to the various elements that influence community college enrollment. The explanation of methods used to predict the 1973-75 enrollments indicates that not all of the elements that influence enrollments were considered. For example, the methodology emphasizes the 18-24 year-old age group, even though the age breakdown of students enrolled in the fall quarter of 1972, was as follows:

20 years old and below	29.60%
21 to 29 years old	31.51
30 year old and above	32.71
Not indicated	6.18
	100.00%

More important, however, was the fact that the final enrollment projection was judgmental in nature. It is, therefore, concluded that the methodology used to develop the 1973-75 community college enrollment projection that was presented in the 1973-75 Governor's budget was not relevant, valid and responsive to the various elements that influence community college enrollments.

It is also evident that the irrelevance of the projection methods was a major concern of the Office of Program Planning and Fiscal Management, Council on Higher Education and State Board for Community College Education. This concern stimulated:

1. The establishment of common enrollment definitions applicable to all segments of post-secondary education;

2. The evaluation of the impact of enrollments occurring after the traditional quarterly start dates. This evaluation was documented by the release of the community college enrollment survey dated April 12, 1973;

3. The expansion of the community college management information system so that student intent categories could be correlated with credit hours and HEGIS classification of course groupings;

4. The development of the Labor Market Demand Model to predict long-range vocational enrollment.

The projection methodology used to support the 1973-75 supplemental budget request also does not consider the factors that would influence enrollments in the community college system. However, the methodology does appear to have statistical validity.

Although the audit findings do lead to the conclusion that the 1973-75 enrollment projection methodology is not sufficiently relevant and responsive to the make up of the community college enrollees to provide a valid enrollment projection, the scope of the study does not provide a sufficient base that permits the auditor to recommend changes to the enrollment projection methodology at this time. Two additional audits of the community college system have been authorized by the Legislative Budget Committee and the findings of this audit will be incorporated

into the findings of the two pending audits to provide the basis for future auditor recommendations regarding changes to the enrollment projection methodology.

B. OPERATIONS FUNCTION

INTRODUCTION

An evaluation of the operations function, as it relates to the development of the enrollment projection, is an assessment of the effectiveness of the plan developed by the Office of Program Planning and Fiscal Management. The approach taken in this analysis was to compare enrollment projections that were presented in the Governor's budget for the years 1971-72, 1972-73 and 1973-74 with the actual enrollment.

FINDINGS

The deviations of actual three quarter average annual full-time equivalent students from the projected values are shown below:

	Variation of Actual From Projection Value in AAFTE	Variation as a Percent of Projected Value
1971-72	+ 1,144	1.7%
1972-73	+ 334	0.5%
1973-74	+ 6,796 (est)	10.3%
1973-74 Supplemental	+ 1,394 (est)	2.0%

EVALUATION AND CONCLUSION

The technique utilized for the 1971-73 biennium would appear to be more accurate than the estimated values utilized for the 1973-75 biennium.

However, in each case, the question of how much impact the funding generated from the projection had on the actual enrollment is raised and unanswered. It should be noted that the 1973-74 supplemental enrollment projections were derived from the districts' estimates of their final Fall 1973 enrollments. This estimating process was not initiated until the month of October 1973.

C. MANAGEMENT REVIEW FUNCTION

INTRODUCTION

The review function of management is basically a comparison of data collected by the reporting system for the purpose of determining whether or not performance in achieving the stated objectives and a follow through by management to assure corrective action is taken where deviations are noted.

FINDINGS

The Office of Program Planning and Fiscal Management has established a system of collecting data from each community college for use in verifying the projection values utilized. The community college management information system will also make available additional data regarding quantities of students by intent category and the relationship of students to credit hours and course offerings. The only data currently collected or defined for collection which would relate students to community groups are age, sex, and ethnic backgrounds.

EVALUATION AND CONCLUSIONS

The data collected to date for use in enrollment projections has been sufficient to determine whether the total headcount for Fall quarter and the total AAFTEs is consistent with the projected values. The Office of Program Planning and Fiscal Management has not developed data requirements which would promote an analysis of community need or the characteristics of students which can be related to local economic characteristics or sociological groupings specifically designed to improve forecasting techniques. It is concluded that adequate provision has not been made to effectively evaluate the causes of actual enrollment deviations from projections.

FACTS ABOUT THE LEGISLATIVE BUDGET COMMITTEE

The Legislative Budget Committee is composed of eight Senators and eight Representatives equally divided between the two major political parties. It provides fiscal research service to individual legislators and the Legislature as requested, and undertakes studies of agency programs, organizations and fiscal procedures for the Legislature concerning: (1) the economy and efficiency of state programs and agency operations; (2) whether appropriations have been expended in accordance with legislative intent; (3) general fund revenue trends; and (4) other topics which may be of legislative interest. The committee reports directly to the Legislature, making recommendations for legislative consideration and action.

During legislative sessions, members of the Committee staff assist the Senate and House Ways and Means committees and other legislative committees in developing objective fiscal data on revenue and expenditures, independent estimates of general fund revenue, and research information on legislative proposals. In addition, a fiscal note repository is maintained during these sessions for easy reference by legislative members interested in the fiscal impact of proposed bills.

Chapter 170, Laws of 1971, 1st Ex. Sess. authorized the Committee to conduct management surveys and program reviews of state agencies. Chapter 197, Laws of 1973, 1st Ex. Sess. provides that management surveys undertaken shall include reviews of program goals and objectives of state agencies to determine conformance with legislative intent, and shall include comprehensive performance audits of such goals and objectives. These performance audits are intended to provide objective analysis of the effectiveness and efficiency of agency management for legislative review.

The 1974 Legislature also provided that the Legislative Budget Committee shall maintain a central control file of personal services contracts for use in preparation of summary reports as directed by the Legislature. In addition, the Legislature directed that unanticipated state or local revenues shall not be expended without approval of the Legislative Budget Committee during the interim between legislative sessions.

The Committee meets on a monthly basis during the interim period between legislative sessions, or more regularly when circumstances indicate the desirability or necessity of additional meetings. The executive committee meets upon call of the Chairman.

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